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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,475	11/26/2001	Gene Ciancaglini	MAL-002AUS	7235
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NETWORK APPLIANCE/BLAKELY 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040			EXAMINER KIM, DAVID S	
			ART UNIT 2613	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/994,475

Applicant(s)

CIANCAGLINI ET AL.

Examiner

David S. Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-15, 17-30, 35, 37 and 38 is/are allowed.
- 6) ☒ Claim(s) 31-33 and 36 is/are rejected.
- 7) ☒ Claim(s) 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. **Claims 31-33 and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Modiano et al. ("Design and analysis of an asynchronous WDM local area network using a master/slave scheduler", hereinafter "Modiano") in view of Gehlhaar et al. (U.S. Patent No. 5,892,916, hereinafter "Gehlhaar").

**Regarding claim 31**, Modiano discloses:

A method comprising:

scheduling packet transmissions over a control channel (channel on wavelength c in Figs. 1-2) and a data channel (any suitable channel in Fig. 1) using a scheduler in a wavelength division multiplexed (WDM) network (abstract), the WDM network comprising the scheduler (abstract), a plurality of nodes (hub and terminals in Fig. 1), and a plurality of unidirectional optical paths coupling the scheduler and the plurality of nodes to each other ("two fibers, one in each direction" on p. 901, col. 1, 2<sup>nd</sup> full paragraph, Fig. 1), each of the plurality of unidirectional optical paths having a control channel (channel on wavelength c in Figs. 1-2) and a data channel (any suitable channel in Fig. 1), said scheduling comprising  
sending a first control (p. 901, col. 2, last paragraph, l. 3-4, the scheduler schedules transmission requests and informs OTs with transmission instructions) packet ("packets" in p. 904, col. 2, last paragraph are obvious form of communication) from the scheduler to a first node (any suitable channel in Fig. 1) of the plurality of nodes, wherein the first control packet includes a source node (when a node

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receives a transmission assignment, this reception indicates that it is a source node for a transmission, p. 901, col. 2, last paragraph), a destination node (e.g., the assignment for queue 1 in Fig. 5 is a transmission assignment for node 1 to transmit to node 3)

Modiano does not expressly disclose that this control message specifies ***a value that corresponds to an amount of information that the source node can transmit***. However, notice that Modiano's nodes are unslotted and unsynchronized (p. 903, col. 1, last paragraph). Also, notice that all of the timing is controlled by the scheduler (p. 903, col. 1, last paragraph). Such timing considerations include when to start transmitting (p. 901, col. 2 – p. 902, col. 1, bridging paragraph). Similarly, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to include when to end transmitting into the timing considerations. One of ordinary skill in the art would have been motivated to do this so that the transmissions of multiple nodes do not “collide”. That is, the method of Modiano involves each node transmitting within the limitations of a slot. If a transmitting node does not know when to end transmitting, this node's transmissions may overlap, or “collide”, in the next slot with the scheduled transmissions of another node. As Modiano describes slots in terms of amounts of bits (p. 903, col. 2, last paragraph), an obvious way to indicate when to end transmissions would be to provide a transmission limit of bits for the source node, which corresponds to the claim limitation of a value that corresponds to an amount of information that the source node can transmit.

Modiano does not expressly disclose:

using the scheduler to schedule and provision for feedback from the plurality of nodes to the scheduler.

However, notice the well known teaching of polling a plurality of nodes to obtain feedback from the plurality of nodes, as shown by Gehlhaar (e.g., col. 2, l. 35-57, col. 3, l. 11-12). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include such polling in the method of Modiano. One of ordinary skill in the art would have been motivated to do this since such feedback allows one to manage the resources of the network to ensure optimum performance

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(Gehlhaar, col. 2, l. 35-38). Accordingly, notice that the scheduler of Modiano serves as a network manager for the network, and Gehlhaar teaches that the feedback would go from the network elements to the destination of the network manager (Gehlhaar, col. 2, l. 45-49, col. 3, l. 11-12).

**Regarding claim 32,** Modiano in view of Gehlhaar discloses:

The method of claim 31, wherein using the scheduler to schedule and provision for feedback from the plurality of nodes to the scheduler comprises:

sending a third (any suitable control packet after the transmission of two control packets from the scheduler of Modiano) control packet (notice the treatment of the control packet limitation in claim 31 above) over the control channel (it is obvious to send *control* packets over the *control* channel of Modiano) to each of the plurality of nodes (Gehlhaar, e.g., col. 2, l. 35-57, col. 3, l. 11-12) specifying the scheduler as a destination (Notice that the scheduler of Modiano serves as a network manager for the network, and Gehlhaar teaches that the feedback would go from the network elements to the destination of the network manager (Gehlhaar, col. 2, l. 45-49, col. 3, l. 11-12). Accordingly, it is obvious for the second control packet to specify the scheduler as the destination node for communications from the network elements to the network manager); and

receiving the feedback from the plurality of nodes over the data channel as scheduled in the third (any suitable control packet after the transmission of two control packets from the scheduler of Modiano) control packet (One of ordinary skill in the art would recognize that either channel is suitable for carrying response communications (Gehlhaar, e.g., col. 3, l. 11-12) from the nodes to the scheduler. Thus, it is an obvious variation for each of the plurality of nodes sends feedback to the scheduler over the data channel in response to the second control packet.).

**Regarding claim 33,** Modiano in view of Gehlhaar discloses:

The method of claim 31, further comprising:

the plurality of nodes simultaneously transmitting and receiving a plurality of data messages on the plurality of unidirectional optical paths (e.g., transmitting and receiving for each optical terminal in Fig. 2).

**Regarding claim 36,** Modiano in view of Gehlhaar discloses:

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The method of claim 31, wherein the plurality of unidirectional optical paths are configured into loops through which packets are transmitted (each pair of unidirectional fibers for each OT in Fig. 1 is a loop).

**Allowable Subject Matter**

4. **Claims 8-15, 17-30, 35, and 37-38** are allowed.
5. **Claim 34** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Response to Arguments**

6. Applicant's arguments, filed on 19 July 2007, with regard to amended claim 31, have been fully considered but they are not persuasive. Applicant states:

"Claim 31 as amended sets forth:

scheduling packet transmissions over a control channel and a data channel using a scheduler in a wavelength division multiplexed (WDM) network, the WDM network comprising the scheduler, a plurality of nodes, and a plurality of **unidirectional optical paths** coupling the scheduler and the plurality of nodes to each other,  
(Claim 31 as amended; emphasis added)

In contrast, neither Modiano nor Gehlhaar, alone or in combination, teaches a plurality of **unidirectional** optical paths. The paths between the scheduler and the OTs in Modiano are **bidirectional** (Modiano, Figure 1). Likewise, the path between the network manager 106 and the network element 108 in Gehlhaar is also **bidirectional** (Gehlhaar, Figure 7, reference numerals 710 and 714). Therefore, neither Modiano nor Gehlhaar, alone or in combination, teaches a plurality of unidirectional optical paths coupling the scheduler and the plurality of nodes to each other. For at least this reason, claim 31 as amended is patentable over Modiano in view of Gehlhaar. Withdrawal of the rejection is respectfully requested" (REMARKS, p. 14-15, emphasis Applicant's).

Examiner respectfully notes the unidirectional optical paths of Modiano ("two fibers, one in each direction" on p. 901, col. 1, 2<sup>nd</sup> full paragraph, Fig. 1). Accordingly, Applicant's point is not persuasive.

**Conclusion**

7. The references made of record and not relied upon are considered pertinent to applicant's disclosure.

Musoll (U.S. Patent Application Publication No. 2003/0041168 A1) is cited to show that predicting packet characteristics is useful for reducing overall processor latency in that data packet processing can be initiated before data packets actually arrive (paragraph [0051]).

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Montgomery ("A review of MAC protocols for all-optical networks") is cited to show various media access control (MAC) protocols for optical networks.

Rubin et al. ("Media access control for high-speed local area and metropolitan area communications networks") is cited to show various MAC schemes.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK



**KENNETH VANDERPUYE**  
**SUPERVISORY PATENT EXAMINER**